

CLAIMS

1. A liquid-gas contact device for a device which, for performing material
5 transfer, heat exchange or mixing between gases, liquids or gas and liquid,
has a liquid distributor provided in the upper portion of the device, a liquid
collector provided in the lower portion of the device and an internal structure
between the liquid distributor and the liquid collector which defines a
plurality of flow paths, said liquid-gas-contact device comprising:
- 10 a column packing constituting the internal structure made of a plurality
of column packing constituting elements each of which extends vertically in
parallel to each other in a non-contact state and in a non-contact state with
an inner wall of the device;
- a plurality of adaptors connecting the liquid distributor with the column
15 packing for supplying liquid from the liquid distributor to the column
packing; and
- a plurality of collectors connecting the column packing with the liquid
collector for supplying liquid from the column packing to the liquid collector.
- 20 2. A liquid-gas contact device as defined in claim 1 wherein each of the
column packing constituting elements has a shape of a line or a belt and each
of the adaptors is formed integrally with one of the column packing
constituting elements and is connected directly to the liquid distributor
without branching off from another adaptor and without causing another
25 adaptor to branch off from the adaptor.
3. A liquid-gas contact device as defined in claim 1 wherein said liquid
distributor is made in the form a trough, each of the column packing
constituting element is made in the form of a sheet and each of the adaptors

is formed integrally with one of the column packing constituting elements and is connected directly to the liquid distributor without branching off from another adaptor and without causing another adaptor to branch off from the adaptor.

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4. A liquid-gas contact device as defined in claim 1 wherein said liquid distributor is made in the form of a tube and each of the column packing constituting element is made in the form of a sheet and is cut vertically into a plurality of portions in the upper end portion thereof to form adaptors, said
10 adaptors being held together in the tubular liquid distributor.

5. A liquid-gas contact device as defined in claim 2 further comprising spacers made of elongated members provided and extending in a horizontal plane at a predetermined interval in a manner to cross the column packing constituting
15 elements, said spacers being fixed to the column packing constituting elements at crossing points with the column packing constituting elements thereby maintaining a predetermined interval between the respective adjacent column packing constituting elements.

20 6. A liquid-gas contact device as defined in claim 1 wherein each of the column packing constituting element is made of a flat plate and a corrugated plate superposed one upon the other, said corrugated plate functioning as a spacer for maintaining a predetermined interval between the respective adjacent column packing constituting elements.

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7. A liquid-gas contact device as defined in claim 1 wherein each of the column packing constituting elements is made of a flat plate and a plurality of plates each having an arcuate cross section, said flat plate and arcuate plates being weaved integrally together and said arcuate plates functioning

as spacers for maintaining a predetermined interval between the respective adjacent column packing constituting elements.

5 8. A liquid-gas contact device as defined in claim 2 wherein each of the column packing constituting elements is made of a zigzag line.

9. A liquid-gas contact device as defined in claim 2 wherein each of the column packing constituting elements is made of a spiral line.

10 10. A liquid-gas contact device as defined in claim 2 wherein each of the column packing constituting elements is made of a zigzag-shaped belt.

11. A liquid-gas contact device as defined in claim 2 wherein each of the column packing constituting elements is made of a spiral belt.

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12. In a device which, for performing material transfer, heat exchange or mixing between gases, liquids or gas and liquid, has a liquid distributor provided in the upper portion of the device, a liquid collector provided in the lower portion of the device and a column packing between the liquid distributor and the liquid collector which defines a plurality of flow paths, adaptors for connecting the liquid distributor to the column packing for supplying liquid from the liquid distributor to the column packing, each of said adaptors being connected directly to the liquid distributor independently from the other adaptors without branching off from another adaptor and
20 without causing another adaptor to branch off from said adaptor.
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13. In a device for a device which, for performing material transfer, heat exchange or mixing between gases, liquids or gas and liquid, has a liquid distributor provided in the upper portion of the device, a liquid collector

provided in the lower portion of the device and an internal structure between the liquid distributor and the liquid collector which defines a plurality of flow paths, a column packing constituting the internal structure made of a plurality of column packing constituting elements each of which extends
5 vertically in parallel to each other in a non-contact state and in a non-contact state with an inner wall of the device.